Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A method by which ~~more than one~~ a plurality of client programs connected to a network ~~stores~~ deposit data items into ~~the same data item at the same location or locations in~~ a data repository connected to the network and avoid repeated storage of duplicated data items, the method comprising:

depositing a data item in the data repository for a depositing client program, the depositing including

determining a digital fingerprint from the data item using a hash function that produces digital fingerprints having a pseudorandom distribution;

comparing the determined digital fingerprint from the deposited data item to digital fingerprints of data items already stored in the data repository;

~~determining~~ establishing from the comparing of digital fingerprints, without comparing the entire contents of the deposited data item to the entire contents of a data item already stored, whether a stored data item is identical to the deposited data item; and

ensuring that a stored data item identical to the deposited data item exists in the data repository, by storing the deposited data item in the data repository if comparing establishes that there is no match, and not storing the deposited data item in the data repository if comparing establishes that a match among the already stored data items is found;

associating the ~~deposited~~ stored data item identical to the deposited data item with a named object, the associating including

associating the ~~deposited~~ stored data item identical to the deposited data item with an access authorization credential which is uniquely associated with the depositing client program or with a data repository user;

associating the access authorization credential with the named object, which comprises the determined fingerprint; and

storing the named object in a database;

retrieving the stored data item identical to the deposited data item, in response to a request by a retrieving client program, the retrieving including

using the access authorization credential to select the stored named object;

retrieving the stored named object from the database; and

using the determined fingerprint from the retrieved named object to return the stored data item identical to the deposited data item;

wherein the physical location or locations at which the ~~deposited~~ stored data item identical to the deposited data item is stored in the data repository are determined at least in part by the determined digital fingerprint.

2-3. (Canceled)

4. (Previously Presented) The method of claim 154 wherein the encrypting of the deposited data item is performed by the depositing client program.

5-6. (Canceled)

7. (Currently Amended) The method of claim 154 wherein the deposited data item is identical to each of a plurality of data items deposited independently by a plurality of ~~independent~~ the depositing client programs ~~each deposit the same deposited data item,~~ and ~~the~~ an encryption key is independently derived from the content of ~~the~~ each of the plurality of ~~deposited~~ data items, and all of the independently derived encryption keys are ~~is~~ the same ~~for each depositing~~.

8. (Currently Amended) The method of claim 154 wherein users of the method are grouped into a plurality of families, and the depositing client program acts on behalf of a user,

and the key derived from the content of the data item ~~is the same for all depositings of the deposited data item by depositing client programs acting on behalf of a users in the same family, but may be different for users in different families~~ is determined in part by which of the plurality of families the user belongs to.

9. (Canceled)

10. (Currently Amended) The method of claim 1 further comprising associating the stored data item identical to the deposited data item with each of a plurality of access-authorization credentials, each of which is uniquely associated with a distinct data repository user or client program.

11. (Canceled)

12. (Previously Presented) The method of claim 1 wherein the stored named object is identified by information representative of the access-authorization credential.

13. (Canceled)

14. (Original) The method of claim 12 wherein the information representative of the access-authorization credential is a cryptographic hash of all or part of the access-authorization credential.

15. (Currently Amended) The method of claim 14 wherein the cryptographic hash is an access identifier that uniquely identifies the stored data item identical to the deposited data item for a particular user or client program.

16-19. (Canceled)

20. (Previously Presented) The method of claim 1 wherein the stored named object further comprises historical version information associating data items deposited at different times with different named object versions.

21-25. (Canceled)

26. (Previously Presented) The method of claim 1 wherein named object history is preserved by creating a new version of the named object each time that a new data item is associated with it.

27. (Canceled)

28. (Previously Presented) The method of claim 26, wherein a determination of which versions of the named object to delete is based in whole or in part on the times at which the versions were created, and the intervals between these times.

29. (Previously Presented) The method of claim 1 further comprising preparing a digital time stamp hash for each of a plurality of named objects to allow a property of these named objects to be proven at a later date.

30. (Previously Presented) The method of claim 29 wherein a random or other difficult to guess element is incorporated into the digital time stamp hash for each of the plurality of named objects, to prevent the property from being proven if this element is deleted.

31. (Currently Amended) The method of claim 1 further comprising determining that the stored data item identical to the deposited data item is no longer associated with any named object, and reusing the storage space used by the stored data item.

32. (Canceled)

33. (Previously Presented) The method of claim 1 further comprising a challenge step to ascertain that the depositing client program has the entirety of the data item being deposited.

34-37. (Canceled)

38. (Currently Amended) The method of claim 1 wherein there is a greater degree of user identification or a higher likelihood that user identification will be required when the depositing client program is acting on behalf of a depositor user and access to the data item being deposited for ~~a~~ the depositor user can be shared with other users.

39. (Canceled)

40. (Currently Amended) The method of claim 1 wherein identity information about a depositor user associated with the depositing client program is made available to the retrieval client programs, to discourage unlawful sharing of proprietary information.

41. (Currently Amended) The method of claim 40 wherein the identity information is stored in an encrypted form that the depositor and users with whom the depositor has shared access to the ~~data item~~ named object can both read.

42. (Canceled)

43. (Currently Amended) The method of claim 1 wherein the identity of a depositor user associated with the depositing client program ~~of the data item~~ has not been verified, and

restrictions are placed on ~~sharing of the data item~~ the use of the access authorization credential by retrieving programs associated with other users.

44. (Previously Presented) The method of claim 43 further comprising limiting the rate of retrieving data associated with the named object.

45-47. (Canceled)

48. (Currently Amended) The method of claim 1 wherein the deposit client program runs on a client machine and is a mirroring program which determines which data items to ~~deposit in~~ transmit to the data repository, and wherein that determination is based at least in part on the result of a comparison of digital fingerprints establishing that certain data items are not already stored in the data repository.

49-54. (Canceled)

55. (Currently Amended) The method of claim ~~54~~ 1 wherein an index data item comprises ~~a plurality of~~ fingerprints ~~for~~ that identify a plurality of data-items stored in the data repository, ~~making up a composite data-item are deposited as an index data item, which can be~~ and the index data item is the data item that is deposited in the data repository and associated with ~~a~~ the named object, and the named object is used by the retrieving client program ~~for obtaining access~~ to retrieve one of ~~any of~~ the ~~component~~ plurality of stored data-items.

56-59. (Canceled)

60. (Previously Presented) The method of claim 15 wherein the data repository comprises the database and the physical locations at which the named-object is stored are based

on the access identifier, to introduce reproducible pseudorandomness into the physical location of the named-object.

61-65. (Canceled)

66. (Currently Amended) The method of claim 1 wherein access to the named objects ~~associated with at least some an access-authorization credentials~~ can be transferred between data repository users using the access authorization credential, without communicating with the data repository.

67. (Currently Amended) The method of claim ~~1~~ 66 wherein at least one class of data repository users is not permitted to transfer access to their named objects to other users using access-authorization credentials individually associated with their named objects.

68-153. (Canceled)

154. (Previously Presented) The method of claim 1 wherein the depositing further comprises encrypting the deposited data item using a key derived from the content of the deposited data item.

155-174. (Canceled)

175. (Previously Presented) The method of claim 1 in which different physical locations comprise different hard disk drives.

176-177. (Canceled)

178. (Previously Presented) The method of claim 1 wherein the physical locations comprise data servers linked by a network.

179. (Previously Presented) The method of claim 1 wherein determining from the comparing of digital fingerprints, without comparing the entire contents of the deposited data item to the entire contents of a data item already stored, whether a stored data item is identical to the deposited data item comprises transmitting over the network the digital fingerprint of the deposited data item rather than the deposited data item itself.

180-182. (Canceled)

183. (Previously Presented) The method of claim 1 wherein the depositing client program comprises a file server.

184. (Currently Amended) The method of claim 1 wherein ~~files and directories are~~ the named object~~s~~ represents a directory of a file system stored within the data repository.

185. (Currently Amended) The method of claim 1 wherein a structured item is split up into a plurality of data items with the divisions occurring at content dependent boundaries and the deposited data item is one of the plurality of data items.

186. (Canceled)

187. (Currently Amended) The method of claim 1 wherein the deposited data item is one of a plurality of identical data items deposited independently by a plurality of the depositing client programs ~~each independently deposit the deposited data item,~~ and a corresponding plurality of retriev~~a~~ling client programs all share read access to the stored data-item identical to the deposited data item.

188. (Currently Amended) The method of claim 187 wherein a retriev~~a~~ling client program~~s,~~ which does not possess an access authorization credential generated during deposit of

~~the deposited~~ the plurality of identical data items, cannot read the stored data item identical to the deposited data item.

189. (Canceled)

190. (Previously Presented) The method of claim 1 wherein the data repository comprises the database.

191. (Previously Presented) The method of claim 1 wherein the depositing client program and the retrieving client program are the same program.

192. (Currently Amended) The method of claim 1 wherein there exists a defined protocol used by data repository client programs to communicate with the data repository, and the defined protocol allows data repository clients to deposit data items without ~~storing them~~ sending their full contents if ~~they~~ identical data items are already stored in the data repository, and the defined protocol only allows data repository clients to retrieve data items indirectly, by using access authorization credentials to select named objects.